

LIST OF CURRENT CLAIMS

Claims 1 - 7 (Canceled)

8. (Currently Amended) A sampling tube-type smoke detector comprising:
  - an optical smoke detection device arranged to detect smoke particles contained in air suctioned through a sampling tube from a monitored area;
  - an aspirator positioned downstream of said smoke detection device arranged to suction air through said sampling tube;
  - a lead-in tube arranged to convey air from said sampling tube to said aspirator;
  - said aspirator having an inlet and comprising a rotating part that sucks air through and discharges air from the lead-in tube and an actuator mechanism driving said rotating part in rotation about a rotational axis;
  - said lead-in tube being connected directly to the air inlet of to said aspirator through an expanded part of the lead-in tube and in which expanded part the flow path expands along the traveling direction of the air;
  - said lead-in tube and said aspirator being oriented with the central axis of said lead-in tube and the rotational axis of said rotating part being substantially coaxial;
  - said lead-in tube, optical smoke sensor unit and aspirator disposed in substantially a linear alignment.

9. (Currently Amended) The sampling tube-type smoke detector according to claim 8, wherein said lead-in tube has a substantially round-shaped cross-sectional form defining a lead-in tube inner wall surface;
  - said lead-in tube and said expanded part are connected via with a connection part of the lead-in tube defining a connection part inner wall surface; and
  - said connection part inner wall surface intersecting said lead-in tube inner wall surface and said expanded part inner wall surface along a smoothly contoured curve.

10. (Currently Amended) The sampling tube-type smoke detector according to claim 9, wherein said connection part inner wall surface joins an inner wall surface of said expanded part of said lead-in tube and is configured as a smoothly curved contour having a substantially semi-spherical shape; and

    said connection part is attached to said lead-in tube adjacent to said aspirator.

11. (Previously Presented) The sampling tube-type smoke detector according to claim 9, wherein said connection part is equipped with a restricted aperture defined by an aperture diaphragm opening smaller than the inside diameter of said lead-in tube central part;

    wherein the center of said aperture diaphragm opening is arranged substantially on the centerline of said lead-in tube.

12. (Previously Presented) The sampling tube-type smoke detector according to claim 11, wherein said aperture diaphragm opening of said aperture has a diameter of 30 to 70 percent of the inside diameter of said lead-in tube.

13. (Currently Amended) The sampling tube-type smoke detector according to claim 9, said aspirator including a body part and a discharge part;

    said body part containing said rotating part and said actuator mechanism;

    said discharge part arranged to discharge air from said rotating part to the outside of the smoke detector,

    said discharge part arranged in a 90 degree direction relative to said rotational axis of said rotating part;

    said discharge part discharging air made to flow in a straight line from said lead-in tube and said expanded part to ~~an~~ the inlet of said aspirator;

    an air duct for discharging air from said rotating part arranged in a periphery of said body part;

    a discharge vent formed in said discharge part; and

said discharge part equipped with a guide which forms a smoothly curved transition surface between said air duct and said discharge.

14. (Canceled)

15. (Currently Amended) The sampling tube-type smoke detector according to claim 11, including an inter-connection part between said connection part and said aspirator, said inter-connection part including said expanded part, said expanded part including a smoothly expanding inner surface, said inter-connection part terminating at an inter-connection and an interconnection part outlet, said inter-connection part outlet being larger in cross section area than the cross section area defined by the inner wall surface of the connection part; said lead-in tube, connection part, expanded part and inter-connection part being formed as one continuous integral piece.

16. (New) A sampling tube-type smoke detector comprising:

an optical smoke detection device arranged to detect smoke particles contained in air suctioned through a sampling tube from a monitored area;

an aspirator positioned downstream of said smoke detection device arranged to suction air through said sampling tube;

a lead-in tube arranged to convey air from said sampling tube to said aspirator;

said aspirator having an inlet and comprising a rotating part that sucks air through and discharges air from the lead-in tube and an actuator mechanism driving said rotating part in rotation about a rotational axis;

said lead-in tube being connected directly to the air inlet of said aspirator through an expanded part of the lead-in tube and in which expanded part the flow path expands along the traveling direction of the air;

said lead-in tube and said aspirator being oriented with the central axis of said lead-in tube and the rotational axis of said rotating part being substantially coaxial;

said lead-in tube, optical smoke sensor unit and aspirator disposed in substantially a linear alignment;

said lead-in tube has a substantially round-shaped cross-sectional form defining a lead-in tube inner wall surface;

    said lead-in tube and said expanded part are connected via a connection part of the lead-in tube defining a connection part inner wall surface;

    said connection part inner wall surface intersecting said lead-in tube inner wall surface and said expanded part inner wall surface along a smoothly contoured curve;

    said connection part is equipped with a restricted aperture defined by an aperture diaphragm opening smaller than the inside diameter of said lead-in tube central part;

    wherein the center of said aperture diaphragm opening is arranged substantially on the centerline of said lead-in tube; and

    said aperture diaphragm opening is disposed between said smoke sensor unit and said aspirator.